Title (en)

IMMERSION COOLING FOR INTEGRATED CIRCUIT DEVICES

Title (de)

TAUCHKÜHLUNG FÜR INTEGRIERTE SCHALTUNGSVORRICHTUNGEN

Title (fr)

REFROIDISSEMENT PAR IMMERSION POUR DISPOSITIFS À CIRCUIT INTÉGRÉ

Publication

EP 4016610 A3 20220907 (EN)

Application

EP 21198796 A 20210924

Priority

US 202017128620 A 20201221

Abstract (en)

A two-phase immersion cooling system for an integrated circuit assembly may be formed utilizing boiling enhancement structures formed on or directly attached to heat dissipation devices within the integrated circuit assembly, formed on or directly attached to integrated circuit devices within the integrated circuit assembly, and/or conformally formed over support devices and at least a portion of an electronic board within the integrated circuit assembly. In still a further embodiment, the two-phase immersion cooling system may include a low boiling point liquid including at least two liquids that are substantially immiscible with one another.

IPC 8 full level

H01L 23/427 (2006.01); **H01L 23/44** (2006.01)

CPC (source: CN EP US)

H01L 23/3677 (2013.01 - CN); **H01L 23/373** (2013.01 - CN); **H01L 23/427** (2013.01 - CN EP); **H01L 23/44** (2013.01 - EP); **H01L 23/473** (2013.01 - CN); **H05K 7/203** (2013.01 - US); **H05K 7/20309** (2013.01 - US); **H05K 7/20318** (2013.01 - US); H01L 23/3675 (2013.01 - EP)

Citation (search report)

- [A] EP 3232753 A1 20171018 - HAMILTON SUNDSTRAND CORP [US]
- [X] US 2008093058 A1 20080424 - KIM JESSE JAEJIN [US]
- [X] US 2020100396 A1 20200326 - IYENGAR MADHUSUDAN KRISHNAN [US], et al

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 4016610 A2 20220622; **EP 4016610 A3 20220907**; CN 114649283 A 20220621; US 2022201889 A1 20220623

DOCDB simple family (application)

EP 21198796 A 20210924; CN 202111373895 A 20211119; US 202017128620 A 20201221